



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,130	09/29/2005	Takahiro Kishioka	125473	4076
25944 7590 11/04/2008 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER				
HAMILTON, CYNTHIA				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
11/04/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,130

Applicant(s)

KISHIOKA, TAKAHIRO

Examiner

Cynthia Hamilton

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 2-14 is/are rejected.
7) ☒ Claim(s) 5/1, 6/1 and 11-14 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. The examiner notes for the record that applicants in their amendment of 31 July 2008 cancelled claim 1, noted that they cancelled claim 1 then asked for claims 1-14 to be allowed. The examiner has examined this application understanding claim 1 is cancelled.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5/1, 6/1 and 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 5/1, 6/1 and 11-14 all depend upon cancelled claim 1, thus there is now no clear antecedent basis to the "underlayer coating forming composition according to claim 1" and no clear antecedent basis to "the polymer having a carboxyl group" or the polymer compound having a phenolic hydroxyl group. Thus, the scope of claims 5/1, 6/1 and 11-14 is too vague to further examine with respect to limits in claim 1 which is now gone.

4. Claims 5/1, 6/1 and 11-14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 is cancelled thus, claims 5/1, 6/1 and 11-14 fail to be in proper dependent form as there is no claim 1 upon which to depend.

5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. There is no clear antecedent basis for the "compound having at least two phenolic hydroxy groups" in claim 2 upon which claim 10 depends.

6. Claims 2- 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants has not pointed to sufficient support for the amended claims, nor does there appear to be a written description of the claim limitation "s-triazine trione skeleton" found in the application as filed. Applicants point to the genus of compounds of formula 2 in claim 9 which are a sub genus of the compound with a molecular weight of 2000 or less but make no argument as to the sufficiency of such disclosure to cover the genus of "s-triazine trione skeleton" with respect to the polymer or a broader genus than that of claim 9 with respect to claim 2. Applicants appear to argue that the recitation of any epoxy in the original specification for any purpose reads on "the like" when referencing the polymer of the instant claims. The standard for support with respect to written description in the original disclosure is that a worker of ordinary skill would know such was part of the disclosure. The examiner believes with respect to the "s-triazine trione skeleton" being part of anything beyond the compounds with a molecular weight of 2000 or less is not so clearly defined as to allow a worker of ordinary skill in the art to so see. As to the broader genus of "s-triazine trione skeleton" being part of compounds with a molecular weight of 2000 or less as for example in claim 7 wherein there is no aromatic ring structure but not a limit to the compound of formula (2) the examiner believes such is not clear enough either in the original specification to allow the broader scope. As claims

8-9 do not remove from the compositions claimed the polymer having such an "s-triazine trione skeleton" they too are included in the lack of support in the written disclosure. See particularly MPEP 2163.04.

7. Applicant's arguments filed 31 July 2008 have been fully considered but they are not persuasive. Applicants point to narrower genus of compounds for those with a molecular weight of 2000 or less with respect to "s-triazine trione skeleton" limits but give no examples of species of the polymers with the "s-triazine trione skeleton". The issue is not obviousness but instead would one of ordinary skill in the art upon reading the original disclosure see clearly that the amended claims had been part of the disclosed original application. The examiner does not believe so especially with respect to the polymer component of the compositions. Applicants do not point to a single example of the polymer with an "s-triazine trione skeleton" present in the original disclosure. The rejection stands as given above.

8. Claims 2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lees et al (5,380,804). The formulations of Example 3 Part A of Lees et al anticipate the instant coating compositions of claims 2 and 8. The compositions of Lees et al are inherently able to act as undercoating compositions or to be made into undercoating compositions thus being "forming" capable. The issue of anticipate is specific to the one specie of composition reproduced below:

EXAMPLE 3

Part A

Formulations 1 to 17 were prepared using glycidyl methacrylate (GMA) copolymers, and 1,3,5-tris-(2-carboxyethyl)isocyanurate (TCI) crosslinker and a cure catalyst as follows:

A 50 weight percent solution of the GMA copolymer, the TCI crosslinker, and the catalyst in N,N-dimethylformamide (DMF) was prepared and applied to Bonderite® 1000 panels using a #32 wire cator applicator. (Bonderite® is a registered trademark of Parker Chemical Company for phosphated cold rolled steel (CRS). "Iron phosphated CRS" is equivalent to "Bonderite 1000".) After drying at room temperature for a few minutes, the coated panels were placed horizontally in a mechanical forced stream convection oven at a specified temperature/time cure cycle. After curing the panels, the physical and resistance properties of the resulting coatings were measured.

. GMA copolymer is the instant polymer compound having an epoxy group. 1,3,5-tri-(2-carboxyethyl)isocyanurate (TCI) crosslinker is the compound with a molecular weight of 2000 or less having at least two carboxyl group and an s-triazine trione skeleton and dimethylformamide (DMF) is the species of solvent used in the composition of Example 3. This composition has each component set forth in a species of the claimed invention and is coated on a substrate thus is a coating forming composition. What is not disclosed is applicants intended use in

semiconductor device manufacture via a lithography process as a resist underlayer anti-reflective coating. The composition of Example 3 of Lees since it has all of the components as in the instant invention is inherently capable of being so used. Mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; Patent Office can required applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on where it has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may be inherent characteristic of prior art; this burden of proof is applicable to product and process claims reasonably considered as possessing allegedly inherent characteristics. In *re Best, Bolton and Shaw* (CCPA) 195 USPQ 430. "A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus." The species in that case will anticipate the genus. In *re Slayter*, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); In *re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989).

1. Applicant's arguments filed 31 July 2008 have been fully considered but they are not persuasive. Applicants argue that Lees does not disclose every limitation of independent claim 1. Claim 1 is not rejected and is cancelled. Applicants argue that Lees discloses a curable powder coating. Example 3 of Lees is drawn to a solution with solvent present. Applicants argue that Lee does not require absorption of light nor the selective etching properties desired by applicants, yet applicants argue that they determined the s-triazine trione structure is that which has these properties. Thus, applicants argue that they have found new properties for the cured coating of Lees in the s-triazine trione structure that would be inherently present. New properties for old compositions do not make those compositions allowable. Applicants argue

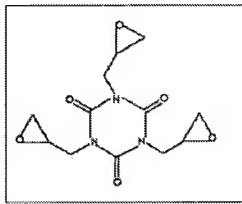
that Lees et al do not disclose all of the necessary compounds because the instant invention "uses a compound having an s-triazine trione skeleton as main component of the polymer ". The examiner notes that applicants have not addressed the species of their compositions wherein the s-triazine trione skeleton can be part of the compound with a molecular weight of 2000 or less having at least two carboxyl groups instead of part of the polymer. Thus, applicants have not limited the instant invention of claims 2 and 8 to that argued not disclosed by Lees.

2. The examiner agrees with applicants' arguments with respect to Derwent - ACC- NO: 1986-290577 and lack of solvent. Applicants amendments to claim 3 of the addition of a required solvent removes this rejection over Derwent - ACC- NO: 1986-290577. Due to the use of a powder melt, the examiner sees no obviousness to add solvent to the compositions of Derwent - ACC- NO: 1986-290577. As support for applicants' arguments, the examiner adds to the record AN 1986:461729 and the actual SU 1217864 document when read in light of AN and columns 3-4 appears to have only the three components of glass fabric, Novolac and triglycidyl compound.

3. The examiner agrees with applicant's arguments with respect to JP 58-107312 a and lack of solvent in the newly amended claim 3.

4. The examiner agrees with applicant's arguments with respect to Harada et al (EP 1 203 792 A1) and lack of solvent in the newly amended claim 3. While Harada et al mentions the obvious addition of solvent in[0085] for viscosity change, the composition which anticipates in Harada et al is a comparison composition which is not storage stable. Thus, there is no motivation to modify the already inferior composition not part of the invention of Harada by adding solvent.

5. Claims 3 and 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishioka et al (either as US 2004/0110096 A1 or as WO 02/086624 A1 as evidenced by US 2004/0110096 A1). WO 02/086624 A1 has a publication date of October 31, 2002 and the National stage of this document, i.e. US 2004/0110096 A1, has a publication date of June 10, 2004. There is no date applicable under 35 USC 102 (c) with respect to these documents. Thus, the dates of concern are the publication dates alone. Since US 2004/0110096 A1 is the National stage of the PCT application of WO 02/086624 A1, US 2004/0110096 A1 is taken as an English translation of WO 02/086624 A1 and is used as such here as to evidence the content of WO 02/086624 A1. All citations are to the content of US 2004/0110096 A1. With respect to instant claims 3 and 7 and 9, Kishioka et al teach the instant invention with the exception of a specific working example wherein a triglycidyl isocyanurate compound is mixed with a polymer having either a phenolic hydroxy group or a carboxylic acid group. Kishioka et al teach the use of mixtures of their formula (1) with a resin in [0035] with concomitant use of a solvent. One example of formula (1) is as described in [0026] as the epoxy derivative with R^1 , R^2 and R^3



being glycidyl. This is the structure as follows: and is

known as triglycidyl isocyanurate in the art. The resins used to mix with the formula (1) compounds are set forth in [0043] in Kishioka et al and are inclusive of polyhydroxystyrene, i.e.

polyvinylphenol, polymaleic acid, polyacrylic acid and polymethacrylic acid among others. With respect to instant claims 3 and 9, the mixing of any one of the formula (1) compounds with any of the resins given would have been prima facie obvious to form the compositions of Kishioka et al to be used for forming anti-reflective coatings for use in a lithographic process to obtain an antireflective layer with high reflection reducing effect and does not cause intermixing with a resist layer to be used as set forth by Kishioka et al in their Abstract. The simple substitution of one known element for another to obtain predictable results of an antireflective layer as taught by Kishioka et al is held obvious in the art.

6. Applicant's arguments filed 31 July 2008 have been fully considered but they are not persuasive. Applicants argue that the polymers of [0043] are to the cases 1-4 wherein no solvent is disclosed. This argument is not persuasive in view of the general disclosure of solvent in [0021] to [0023] with reference to the composition for forming anti-reflective coating according to the invention of Kishioka et al being 0.1 to 50% solids content. This means to the worker of ordinary skill in the art that 50% or more of the compositions are solvent. Further evidence is that each Example composition has solvent present in Kishioka et al. Thus, the use of solvent is prima facie obvious to allow spin coating and the formation of thin layers of material. The rejection stands.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Hamilton/
Primary Examiner, Art Unit 1795

October 29, 2008